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VI. DIVERSE REPORTS AND LECTURES

Cytologic changes in the reticulo-endothelial function of the thymus: I. Tóth (Department of Histology and Embryology of the University in Budapest.)

Thymus cells in rats and their morphological changes were studied in tissue-cultures. The cells, in a permanent culture of 1—3 weeks suffer a considerable transformation. Thymocytes are perishing soon, whereas growth of connective tissue and epithelial cells appears. In the surviving cultures a formation of Hassall's — corpuscles was observed. Through isolation from the epithelial lamellae, epithelial cells transform to macrophages. This isolation is preceded by a nearly complete mitosis, which is remitting into the original cell. In the second week of cultivation a new generation of thymocytes appeared, formed by a special multiplication of the epithelial cells: within the protoplasm of the epithelial cell — without any perceptible structural alteration of the nucleus — a thymocyte is formed which abandons after by diapedesis the epithelial cell. The cell transformations were recorded microcinematographically. The opinion is expressed that thymo- and lymphocytes are not identical regarding their genesis, and therefore certain differences should also exist in them. Research is continued in order to prove these differences.

Investigations of the cell-physiology of the liver in connection with the reticulo-endothelial system (with microcinematographical demonstration): J. Veldes. (Department of Histology and Embryology of the University in Budapest.)

In tissue cultures the epithelial membrane detaching from liver parenchyma, (third passage) diminishes on the 10th—12th day. If India ink dust is added to the culture medium is phagocyted not only by macrophages, but by the epithelial cells too. Epithelial cells, covered with India ink particles, undergo a division in a similar way as normal cells.

A slight percentage of lymphocytes also contains India ink: in lymphocytes the India ink adheres in form of some particles to the nucleus and does not intrude into the interior of the cell.

In liver tissue cultures of half-time rat embryos, on the 10th—20th day (20th passage) the cells of the dissociated epithelial membrane transform to cells of connective tissue type. In the latter, a few were observed being free of nuclei which are formed in all probability by separation of protoplasm. In some stained specimens of the endothelial cells, condensation of the protoplasm and formation of a nucleus was seen. Hereby it is justified to conclude that in the formation of certain cell types and in cell transformations a similar process may take place.

The distribution of radioactive lead salt in the organs of the reticulo-endothelial system: T. Ruzsa, L. Kertész and G. Gyenes. (Department of Histology and Embryology of the University in Budapest and The Physical Institute of the University in Debrecen.)

Lead sulfide has been traced by aid of Thorium B; a colloid has been prepared, stabilized by gum-arabic. The distribution of this colloid in the rabbit's organism has been examined, including the elimination of it from circulating blood after intravenous administration. The different organs were destroyed in a humid state; water contents have been determined, the radioactivity of the residuals has been measured by a Geiger—Müller counter.

Computed for 100 g weight of the fresh, humid organs, storage is most marked in the spleen, bone marrow, liver and kidney. 27 per cent of 2 mg/kg lead sulfide were stored in the liver. Tests were made 2 hours after administering the tracer lead-ions. There are some divergences

* Continuation of report in Number 2.

between the elimination-curves of collected from the blood. The divergence of the curves was much smaller when the quantity of lead in 1 ml blood has not been recorded as the function of time, but the blood-lead-concentration was determined by interpolation, 5 minutes after the intravenous administration. Using this quantity as the basis every other determination result depending on time was expressed in a percentage of this value. The divergence of elimination curves has been discussed; the distribution of elimination is regarded as the result of several different factors.

Criticism on Gömöri's phosphatase-reaction, relying upon study with aid of tumours: Z. Pénzischy and S. Szalay. (Department of Histology and Embryology of the University in Budapest and the Physical Institute of the University in Debrecen.)

The alkaline phosphatase reaction as described by *Gömöri* and *Takamatsu* has been examined using a self-devised method with special regard to the loss of activity during embedding into paraffine and other preparational procedures, (described by *T. Barka*, *S. Szalay*, *Z. Pénzischy*, *L. Kertész*. Annual Meeting of the Hung. Biologic. Soc., 1950 Kísérl. Orvostud. 2. No. 1, 1951. Hung.): by use of a tumour lead-nitrate, the enzymatic activity of microscopic specimens can be determined quantitatively too. Freezing-drying embedding was also used.

Examinations showed destruction of the greatest part (up to 95 per cent.) of the enzyme. Loss of enzymatic activity occurs mainly during imbibition of the specimens with molten paraffine at 56° C. Within the first 24 hours, the enzymatic activity is not severely influenced by the interval between death and fixation of the specimens. Among the fixatives, only acetone shows a marked interference with enzymatic activity. By handling the specimens a resolution had to be taken into account destroying of further loss in enzymatic activity or after formation of the deposit.

Present study reveals that in every phase of histochemical methods some loss of enzymatic activity may occur. Hereby contradictory findings recorder in literature are explained.

Enzymatic activity of irradiated tissues: K. Ráv, L. Ráv and K. Vásárhelyi (Radium State Hospital, Budapest.)

The effect of X and gamma rays has been examined in living tissues. Using well-known histochemical reactions, the enzymatic activity in human and animal tumours and in tissues of animals killed by total-body-irradiations, has been investigated. The present report deals with changes of phosphatase activity in the tissues of animals killed by total-body-irradiation.

In the first experiments rats were used synthetising vitamin C; because in other animals upon X ray irradiation a considerable amount of vitamin C is excreted, which results a decrease of phosphatase-activity. Rats were irradiated in a single or in fractioned dosage with 3000—4000 r, at 180 kV/ 15 mA, 0,5 Cu filter, 50 cm distance. In each series other animals were kept under analogous conditions, but not irradiated. When the irradiated animal deceased, the control was killed. Organs of both were contemporaneously prepared in an identical manner using for specimens of identical organs identical slides. Gömöri's original method was used. In some organs increased phosphatase activity has been found. The most conspicuous finding is the increased phosphatase activity of the parenchyma in the normally phosphatase-negative liver activity restricted in normal animals to biliar duct and vascular walls. Increased enzymatic activity, was found furthermore in the basal membrane of the [illegible] in synovia, in the bronchial epithelium and in desquamated alveolar epithelial cells. Alterations of phosphatase activity are difficult to judge in other organs (because of autolysis of the [illegible] diffraction of decalcification in the bone-marrow, high activity in the normal kidney, etc.). The increased phosphatase activity of the liver parenchyma may serve as an explanation of hypoglykaemia, consecutive to irradiation. It may be due to depolymerising [illegible] through the radiation effect, manifesting itself as an enzymatic effect.

The alkaline phosphatase activity in sympathetic ganglions and its alterations during pregnancy: B. Aros and L. Kertész. (Department of Histology and Embryology of the University in Budapest and The Physical Institute of the University in Debrecen.)

Phosphatase activity and its alterations were examined histochemically in the sympathetic ganglions in cats, rabbits, guinea pigs (using the *Gömöri—Takamatsu* method) as well as by quantitative histochemical means (*Barka*, *Szalay*, *Pénzischy*, *Kertész*: In the press.) The most intensive reaction is induced by interstitial and capsular glia cells of the ganglions.

and by interstitial fibres. The reaction is apparently more marked in the peripherial parts of the cells where there are also accumulated Nissl granules. A positive reaction is given furthermore by the nuclear membrane, the nucleolus and by some chromatin fragments in the nucleus. Quantitative histochemical tests, based on the use of a tracer, revealed a higher concentration of the enzyme in the superior cervical ganglion than in the inferior or coeliac. This is probably due to a structural difference. During pregnancy an increase of fermentativ activity occurs. Possibly this is due also to some structural alterations, i. e. proliferation of the interstitium, containing much enzyme.

Experimental studies for alterations of the eosinophilic count in circulating blood:

L. Kádas. (Department of Pathological Anatomy and Histology of the University in Pécs.)

In experiments on rabbits, after administration of histamine a marked eosinophilia was stated. Similarly, eosinophilia is induced by drugs causing excitation of the vegetative nervous system (as acetylcholine, suprarenine), by liberating histamine. On the other hand, by application of paralysants of the vegetative system the increase of the eosinophilic count, induced by acetylcholine and suprarenine, has to be blocked. Extract of the adrenal cortex counteracts eosinophilia of histamine and acetylcholine, yet has no effect if it is induced by suprarenine. By administration of antihistamines eosinophilia due to histamine and to stimulants of the vegetative nervous system is blocked. Giving adrenal cortex extract in se, a drop in the eosinophilic count occurs, while antihistamines cause no change whatever. In rabbits suffering from intestinal worms, displaying eosinophilia, in acidosis a drop of the count to subnormal values occurs, while in normal animals a marked eosinophilia was induced by alkalosis. Eosinophilia due to alkalosis, is checked by previous administration of adrenal cortex extract. The conclusion is drawn from the reported experiments that the eosinophilic count of the circulating blood is regulated primarily by the blood histamine level, and indirectly by the activity of the adrenal cortex. There is a close connection between the activity of the latter, the pH and its alterations in blood, acidosis causing increased activity of the cortex, hereby inducing a lower histamine level and a reduction of the eosinophilic count in the blood. In alkalosis, due probably to hypofunctional activity of the adrenal cortex, the histamine level is increased and the count of eosinophils rises.

A contribution to the functional histology of mast-cells: L. Horváth (Department of Histology and Embryology of the University in Budapest.)

Some data about heparin, recorded in biochemical literature, were used as a histochemical reaction for identification of heparin in the protoplasm of mast cells, viz.

1. the heparin-toluidine complex forms a metachromatic deposit, insoluble in water;
2. heparin acts as an inhibitor of trypsine in blood serum;
3. the metachromatic deposit of heparin-toluidine is subsiding on the action of histamine, toluidine regains its original colour.

These reactions were used in histochemical researches for tissue specimens.

In dark field microscopy of native specimens, in the mast cells no granulation can be seen. In specimens stained with toluidine, the granules appear as shining corpuscles. They are apparently artefacts due to the action of toluidine, i. e. an intracellular deposit.

Specimens of connective tissue membranes were exposed to the action of a 0,05 per cent trypsin solution. After digesting through 30 minutes, areas free of mast cells did not stain with toluidine, while regions rich in mast cells did not loose their ability to bind toluidine. This is characteristic for the mast cells containing some antitryptic principle.

By putting a few grammes of histamine into the vicinity of mast cells stained with toluidine, decoloration was observed within a few seconds. This is due to the loss of ability to bind toluidine, to the granules of the mast cells.

The results of the reported three experiments cogently prove that mast cells contain heparin.

The Osteoncids: J. Nágyin. (Department of Anatomy of the University in Budapest.)

The idea of distinguishing human from animal bones by mere structural differences was suggested by B. Kenyeres and W. Hegyi, in connection with forensic medical problems. This idea has a substantial importance, not only for forensic medicine but also for various other disciplines. While starting with the investigations it became obvious that archeology and

paleontology have the same requirement concerning microscopical research into bone structure as forensic medicine. While research progressed, other disciplines became interested in the study. Osteonoids are discussed actually in order to explain these connections.

The osteonoids are vascular channels, with proper walls formerly not recognized as independent units. They are common in the periosteal as well in the endosteal part of the bone. This type shows considerable differences in comparison to haversian canals (osteon), with regard to locality of formation, rate disposition, confluence and function. This type of channels is denominated osteonoid.

The author showed in a series of transverse sections simple osteonoids and polyosteal confluent osteonoids. The author referred to the disciplines interested in the microscopical investigations of the structure of the bone.

The simple osteonoids and their confluent forms are of substantial importance for comparative histology. Confluent forms develop during the evolution of the different races, the phillogeny is interested in these studies too. By ontogenetic series the importance of the structures for ontogenesis was emphasized. General zoology is concerned in parallelism, con- and divergencies, functions of the organs and their disfunctions, in a similar respect, bone mechanism is also touched. A special importance must be attributed to osteonoids in bone pathology with regard to their irregular distribution or absence. There are still many disciplines interested in these researches.

The study of osteonoids has up to now practical significance only in forensic medicine and is only of a scientific value in other disciplines.

The activity of the periosteum and experimental influences on these.

I. Krompecher (Department of Anatomy and Biology of the University in Debrecen.)

The periosteum of growing bones is in an active stage, generally in an appositional activity. The growth of bones in a grown-up organism is completed. At this age the periosteum acts in functional rebuilding of the bones on the external surface. In cases of increased demand the periosteum produces bone: activity-hypertrophy; resting the periosteum resorbs the bone: inactivityatrophy.

Living under uniform physical stress, extended areas of the periosteum are in a relative resting stage. In comparison with this state, the periosteum becomes activated by increased functional stress as well as by lasting rest. At increased functional stress we observe a building activity with osteoblasts building the bone, and at lasting rest we find a resorbing activity with multinucleated osteoclasts resorbing the bone.

By inactivating a hind leg of dog (by plaster dressing, by nerve dissection etc.), the periosteum could be easily removed from the tibia, displaying at its innermost face osteoclastic giant cells. Contemporaneously on the contralateral tibia, receiving more stress than formerly, the periosteum adhered firmly to the bone surface and microscopically osteoblastic activity was to be seen. One must become aware of the fact that the periosteum not only builds the bone, but even resorbs it.

As regards the practical perspective of the experiments: there is a possibility to activate the periosteum. If periosteum is grafted in order to produce bone, one must be careful to use a periosteum which is in the stage of building activity.

Connections between the fat contents of cartilage cells and ossification:

I. Nagy, Gy. [illegible] and B. Csillik. (Department of Anatomy, Histology and Embryology of the University in Szeged.)

Authors stated by previous investigations that in early stages of embryonal development more fat is contained in the early calcifying cartilages than in the later calcifyings. According to their researches about the ossification centre, phosphatides are to be found. Presently their distribution and P distribution in the cartilage has been examined, by a modification of the *Fiske—Subarow* method for microscopic specimens.

Around the ossification centres, in cartilage cells phospholipoid granule can be demonstrated first of all in those areas where columnar arrangement of the cells started. By measuring the P contents of ether-alcohol extracts of different cartilages, it was stated that the calcifying cartilages contain 60 per cent more P than noncalcifyings, being indicative of an identical proportion of the phosphatide contents of two kinds of cartilages.

As the fat content of the cartilage cells is immediately adjacent to the ossifications centre it seems probable that fats and phosphoriponds are used in preparing ossification. It seems furthermore probable that by phosphatides an increase in phosphatase activity is induced, as pointed out by *Weil* and *Russel*.

The osteogenine, soluble in alcohol, produced in 1945 by *Lacroix*, is to all probability identical with one of the demonstrated lipoids or with their combination.

Studies on the antidiuretic substance of the hypothalamus and pituitary

K. Kovacs and D. Bacharach. (Department of Pathological Anatomy and Histology of the University in Szeged.)

Biological activity of hypothalamus extracts was examined repeatedly, yet the results were quite different. Relying upon experiments in rats, the authors stated a marked antidiuretic effect of an aqueous saline extract. Biologically, this antidiuretic substance could not be separated from the antidiuretic pituitary hormone. The two substances are steemed as identical. Whether the hypothalamic substance is produced in the hypothalamus or transported from the pituitary could not be exactly determined.

By administering hypertonic salt solutions, by the alarm reaction due to formaldehyde and after adrenalectomy, the production of the antidiuretic substance of the hypophysis and hypothalamus is markedly reduced. A reduction in the shock stage of the alarm reaction is indicative of participation of the neurohypophyseal-hypothalamic system — besides the anterior lobe — in defence against non-specific damages.

Present studies support the view that in the hypothalamus there is a storage of hormone which are easily mobilised when needed. Besides the neural and humoral regulative functions of the hypothalamus, a further regulating function is stressed : the function of the neurohypophysis may be promoted by liberating its own active principle. The hypothalamus, thus, plays a double role in water-metabolism : a regulating as well as an auxiliary one by mobilising its hormone-depot.

On to the pathology of hypopituitarism : J. Gruncz and M. Mocsnyi.

(Department of Pathological Anatomy and Histology of the University of Szeged.)

Description of 6 autopsies with hypopituitarism.

1. Infantile male dwarf of 39 years. The pituitary is totally destroyed by a large, cystic craniopharyngioma.

2. Boy of 14 with symptoms of dystrophia adiposogenitalis. A medulloblastoma on the right side of the third ventricle caused by compressing the Sylvian aqueduct hydrocephalus internus and thereby the pituitary of 0,57 g weight was severely compressed.

3. Infantile male dwarf of 31 with severe atrophy of the pituitary (weight 0,34 gh due o a craniopharyngioma.

4. Emaciated female of 19 years, with a clinical diagnosis of diabetes insipidus. By a mesencephalic pinealoma the hypothalamus was nearly totally destroyed, without having caused any direct damage to the pituitary that is of 0,66 g weight.

5. Female of 49, with acromegaly. A cystically degenerated malignant eosinophilic adenoma caused a total destruction of the gland.

6. Male of 67 with hypopituitary symptoms. The gland was nearly totally destroyed by a necrotic and partly calcified craniopharyngioma.

In two cases dwarfism and minuteness of the inner organs point to disturbance in growth hormone production. The low weight and histological structure of the thyroid in every case show lack of its function and of the thyrotrope pituitary principle. Hypoplasia of the gonads and reduced size of the sexual organs, lack of secondary sex characters are indicative of lack of the gonadotropic pituitary hormone and of a consecutive functional disturbance in the secretoric activity of the gonads. In the adrenal cortex the fasciculate and reticular zones are reduced in size while the glomerular zone is of normal thickness. This confirms former experimental observations on the morphological and functional duality of the adrenal cortex.

The Langerhans-islets, the adrenal medulla and the parathyroid glands appear not to be affected. High level emaciation was not observed in any case, thus cachexy cannot be regarded as the leading symptom in hypopituitarism. The authors point out that it is more correct to speak about the decreased activity of the pituitary-hypothalamic system instead of hypopituitarism since there is some damage mostly at both sites of this functionally unitary system.

Fetal chondrodystrophy : S. Braun and M. Erdelyi. (City-Hospital of Péterfy Sándor-Street, Budapest.)

Pregnancy III. of a 29 years old woman. Anamnestically no developmental anomaly could be stated either in the offspring, or in ancestry. Delivery in a complete double foot presentation of a mature, malformed female baby with chondrodystrophy, after discharge of approximately 7 liters of amniotic fluid. the baby remained alive for 20 minutes. The half skeleton, the main inner organs, endocrines have been thoroughly investigated.

Weight 3000 g. length 36 cm. cranial circumference 37 cm. signs of a high-grade micromelia. Arms and legs are oddly short and stout, with wrinkled integument. Pronounced "mask a trident". Deep impression of the nasal base and bulged forehead. The umbilical trunk is nearer to the symphysis than normally. Roentgenogram shows, in the diaphyses of the long tubular bones a thick and dense cortical layer. The epiphyses are straight and mostly well separated from the diaphyses. Shortness of the tubular bones is obvious from the 4.5 cm length of the left humerus, 4 cm length of the left femur and 3,8 cm length of the left tibia. On the inner side of the rib-cartilage border is a marked, garland-like thickening portion. Histologically, the lack of columnar arrangement of the cartilage cells and defective rate of preoperative calcification must be stressed. Primary marrow holes intrude into the calcified cartilage forming hollow plates. In the vertebrae bone formation in cartilage remnants is conspicuous. The abnormal histological findings, especially the perfectal layer between epi- and diaphysis have been demonstrated in 13 slides. The connection of the perfectal stains with marrow channels of the cartilage is well demonstrated by the slides, similarly the connection of calcified foci in some cartilages. The foramen occipitale magnum and the vertebral canal of the vertebrae VII—IX is markedly narrow. The os basilare is of 18 mm length. the spheno-occipital synchondrosis is extendedly ossified. The subcutaneous adipous tissue is increased in size ; the inner organs display signs of cyanosis, in the liver fatty degeneration, fetal hematopoiesis. Air-containing lungs. Bilateral and internal hydrocephalus. No pathologic alterations of the thyroid and parathyroids. A pronounced trabecular structure in the thymus, with reduced number of Hassal's corpuscles total lack of eosinophiles. The pituitary is of somewhat hypernormal size without displaying any pathologic structural irregularity. Ovaries without structural changes.

In the development of the described hypoplastic chondrodystrophic child the marked hydramnion seems to support the mechanical theory of *Mark Jansen* ; however, authors are inclined relying upon the demonstrated slides, to regard the quantitative and primarily qualitative disturbance of the preformative cartilage that plays an important role in endocrinal ossification as the most essential feature of chondrodystrophy. The question was not cleared, whether external or internal etiologic factors play a role herein.

Hormonal influences on tissue reactions : P. Endre. (Kéthi Anna Hospital, Budapest.)

In 22 albino mice autotransplantations of the ovaries were performed, in order to study the influence of hormones upon the grafts. Free grafting into the subcutis was unsuccessful. Between, two phases in transplantation were made : in the first phase on an uterine style the ovary was put into the subcutis, and in a second operation the uterine connection was interrupted. Autotransplantations of this kind were successful.

By administering ration of progenata, increased size of the follicles, formation of corpora lutea and diffuse hemorrhagic infiltration of the stroma was induced. This reaction is explained by neuro-hormonal connections.

On the bright cells of the uterine mucous membrane : K. Fechner. (Gül Baba Hospital, Budapest.)

Cyclic menstrual changes of the uterine mucous membrane are the best examples of a higher, neuro-endocrine correlation between functional organ-activities.

The influence of hormones upon the cyclic changes in the uterus is beyond doubt. Their way of action is, nevertheless, not yet cleared. They are supposed not to act immediately, but by the mediation of endocrine cells within the influenced organ. In the uterine mucous membrane the bright cells are regarded as localized endocrine mechanism. Their determination as bright cells was originated by Feyrter, who considers these cells as parts of the diffuse epithelial endocrine organ. Later Feyrter expressed the opinion, that bright cells are of a special appearance of flagellated epithelium, and there are connections between their numerical variations and the menstrual cycle. In cystic and polypous hyperplasy an increased number of bright cells was found.

On account of his investigations author realised the identity of these bright cells with those described formerly by *Mihalik* as compensatory cells. These were regarded by *Mihalik* as closely connected with formation of flagellae. Mihalik's theory was confirmed by *Florke* too. Supposedly these cells display differentiation into two directions: partly into a flagellated, and in an other part into a secretory e ithelium. Though there is no proof whatever of the secretory activity of these cells, there is nevertheless some connection between these cells and hormonal activities, and their numerical variations are closely connected with the hormonal activity of the ovaries. The final conclusion is that numerical variation of these cells is a reliable morphological indicator of the hormonally regulated dynamic equilibrium of the uterine mucous membrane. An increased number is indicative of follicle hormone preponderance.

Contributions to the neuro-histopathology of hypertony. I. The patho-histology of sympathetic ganglions in autopsy-cases: Gy. [illegible] (State Hospital of Mental Diseases, Lipótmező-Budapest.)

From preliminary investigations the following conclusions are drawn.

1. The usual histological methods (like staining with hematoxylin-eosin, van Gieson's stain, Nissl and Mallory stains) are less suitable for such investigations than silver impregnation methods, as the ramifications are not demonstrated and only the shape of the neurocytes is clarified by the former, while through the latter the neurocytes with all their ramifications and through alterations in the interstitium are well demonstrable.

2. In biopsy material — sympathetic ganglions removed in arterial hypertension — the morphological alterations due to the hypertonia are partly overshadowed by pronounced changes, induced by mechanical and chemical traumatisation of the nerve cells due to the operative procedure.

3. Post mortem changes begin comparatively late in sympathetic ganglions, thus post mortem material may be used within 6—12, eventually 16 hours.

Using the Bielschowsky—Gros—Schultze silver impregnation, in sympathetic ganglions of persons deceased in hypertony, severe and characteristical changes were found, similarly to findings of *Mogilnitzky* (1947) and *[illegible]* ([illegible]). The changes in certain ganglia were of a different degree. In the case of nephrosclerotic, malignant hypertonia the most severe changes were found in the ganglions regional to the kidneys, while in persons deceased in apoplexy, the ganglions of the sympathetic trunk displayed most severe pathologic alterations.

In the sympathetic ganglions proliferative and degenerative changes were observed. Proliferative changes are: increased turgor of the cells, increased pigmentation, hyperargentophilia of the processes developing later on the cells, hypertrophy and hyperplasy of the ramifications. Degenerative changes: Destruction of the fiber and — in later stages — [illegible] ramifications, neurolysis by capsular and interstitial cells, gradual decay of the neurocytes with final neurolysis. In two specimens, regenerative changes were intense in sympathetic ganglions.

The changes of the sympathetic ganglions are regarded by the author as the results of chronic stimulation arising in the central nervous system. A proof of this opinion is the finding in a patient, operated bilaterally two years prior to decease according to Smithwick's method. The decease was caused by apoplexy. The remaining cells of the coeliac ganglion liberated from the influence of pathologic excitations by the operation, showed a nearly normal appearance while in the other sympathetic ganglions severe changes were found.

The final conclusion of the author is, that the sympathetic system does not consist of cells of a rigid unchangeable form and structure, unaffected by pathological excitations; on the contrary due to these excitations it is a steadily changing system of nerve cells, by chronic pathologic excitations intense morphological alterations are induced.

Regeneration of the adrenal cortex: [illegible] and [illegible] (Department of Anatomy and Biology of the University in Debrecen.)

After unilateral operative injury to the adrenal cortex in rats, animals were sacrificed at different intervals. Histological examination of the injured adrenals.

First signs of regeneration appear on 6th—8th day after the injury. Regeneration starts from the capsule. This has formerly also been stated. Some authors regard indifferent, fibroblast-like cells of the capsule as the elements responsible for the production of new cortical cells (Zwemer and others). A similar importance is attributed by Bachman to the

subcapsular blastemae, forming the innermost layer of the capsule. According to the present study both views may be accepted, thus the two theories are combined. A regenerative activity can also be perceived in the glomerulous zone, while the fasciculate one is not connected. Without having made special studies, authors are apt to believe that from the non-specific granulation tissues following injury cortical cells are formed through action of cortical hormones. This would mean a chemically directed cell differentiation like the experimental findings of Cheremont with histiocytes.

Further progress of regeneration depends on the extent of the injured region. In case of small injuries to the cortex (as e. g. after removal of the glomerulous zone), the regenerate covers the defect totally, while in injuries extending over more layers during observation periods, some defect remains. 50 days after injury, there is a defect in comparison with the state before the operation covered with freshly formed capsula subjacently a freshly formed glomerulous zone is found.

In the medullar substance of the injured adrenals, formations were seen, morphologically closely resembling to cortical cells. Regarding their origin, in our opinion we have to deal with transformation due to need of pluripotent cells, found everywhere in the animals organism. The reduced function of the injured cortex may be compensated.

Regenerative phenomena round peripherical nerve trunks, transplanted into the brain : G. Székely. (Department of Anatomy, Histology and Embryology of the University in Pécs.)

No manuscript received.

Regeneration experiments with grafting peripherical nerve trunks into the brain : B. Vándy. (Department of Anatomy, Histology and Embryology of the University in Pécs.)

No manuscript received.

Quantitative evaluation of wound healing : L. Dévényi and Gy. Györy. (Department of Pathological Anatomy and Histology of the University in Debrecen.)

As there is no proper test known in evaluation of the process of wound healing, our aim was to establish a suitable test. This kind of test is of practical importance in quantitative evaluation of different drugs of Filatov extract and of karyoclastic compounds used for wound treatment.

The skin on the back of albino rats was shaved and with an interval of 1 cm two circular wounds of 1 cm² surface were inflicted. The surface was measured on the 7th day and the time required for healing was recorded. The crust covering the wound is shed usually on the 5—8th day, intercen a new one is forming. This process sometime reccurs. As long the wound is not covered by a crust, surface measurements are made.

This method was used on 200 wounds. The surface amounts in average to 22,7 – 23,2 sq. mm. in groups of 40 animals on the 7th day. Inspite of close vicinity of averages, a distribution of the values in single animals between 15 and 35 sq. mm. was observed. The sigma of the average value s amounts to + 3,3 sq. mm. Thus, the wound healing has to display in case of any treatment a difference of more than 14 per cent. on the 7th day, from the average values given above, in order to attribute a significance to the change.

Regarding the time required for complete healing, the time values displayed a range between 13 and 20 days, with a mean of 16,7 days, and a sigma of 0,7 days. Differences of more than 4 per cent are thus significant.

Some observations on the quantitative evaluation of the regeneration of rats' skin : L. Balázsy. (Department of Pathological Anatomy and Histology of the University in Debrecen.)

Investigating the regeneration of the skin on rat, some concrete problems had to be solved viz. how far conclusions concerning time required for healing, are justified to be drawn from the qualitative appearance and in what way the crust is formed and also which changes it undergoes.

These problems were studied in 120 albino rats, inflicting wounds with a circular trephine of 1 sq. cm surface.

Healing starts [illegible] of the borders. In this necrotic part leukocytic infiltration occurs and it is hereby demarcated. 12 hours after having caused the wound, a slight thickening of the epithelium is observable and the epithelium starts to proliferate beneath the crust. On the second day formation of new connective tissue starts focally being closely connected with the subcutaneous adipous tissue and the subcutaneous capillaries. On the 7th day, in the fresh granulation tissue some vessels display a vertical course, characteristical to the healing time.

In the formation of the crust, the initial border necrosis, proliferation of the muscular and adipous tissue play also a role. In well adhering crusts a marked frontier appears between the crust and fresh granulations, though some superficial necrosis is always to be seen in the granulations. When the crust is pushed off, the surface of granulation tissue displays necrotic phenomena, a disintegration of structure and a uniformisation of the fibers. If shedding of crust lasts somewhat longer, a new one is formed, containing vessels, decayed fibers and cell crumbs. In strongly adhering crusts, epithelium proliferates in clusums consisting of 1—2 cellular layers, while in crusts not closely adhering, epithelium does not proliferate further. However, differentition starts in the formerly proliferated epithelial parts hornification occurs endostally with previous production of keratohyaline granules.

The effectes of prolonged oral administration of tannic acid in rats:

[illegible] Kulhay. (Department of Pathological Anatomy and Histology of the University in Szeged.

Changes in the liver due to prolonged oral administration of tannic acid and alcohol, and changes produced both by tannic acid an alcohol together were examined in rats.

57 albino rats, males and females, weight ranging from 100—250 gm were used. They were divided into three groups, fed mixed diet supplemented per groups daily 50 gm. fresh cheese. Animals of the first group were treated with 4 ccm aqueous tannic acid solution administered perorally in 1—5 per cent gradually increased concentration. Animals of the second group were given an alcoholic tannic acid solution; concentration of tannic acid being augmented by 4 per cent while of the alcohol gradually to 10—30 per cent. The third group was administered purely alcohol in 10—30 per cent concentration. Treatments were made daily, interrupted, by shorter intervals. The animals obtained 8—25 treatments during 391 days of the experiment.

In the liver of the animals treated with aqueous tannic acid solution at the beginning slight serous hepatitis, later some structural changes appeared. At early stage, in the liver of some of the animals extensive acinocentral necroses were accompanied by a marked degeneration. Later the increase of the reticulum occurred. Still later in the liver of two animals, killed on the 122 nd and 131st day resp. of the treatment, formation of pseudocirrhosis, i. e. a cirrhotic change of the hepatic structure was observed. In those animals the liver displayed also macroscopically a finely diffuse granulated appearance.

Changes in the liver of the animals treated with alcoholic tannic acid solution were similar, but less marked. Extensive necroses were only once observed, total dissolution of the hepatic structure, however, could in no case be noticed. Alcohol itself failed to cause any damage to the liver.

From these experiments may be stated that the prolonged peroral administration of tannic acid resorbed from the gastro intestinal tract causes typical changes in the liver of albino rats. These changes are similar to those caused by parenteral administration of tannic acid and to the early stage of the Laennec cirrhosis in man. Contemporaneous administration of alcohol does not seem to promote the carrhogenic effect of tannic acid.

Contribution to the protection of acute hepatotoxic effect of tannic acid

[illegible] Kovács (Department of Pathological Anatomy and Histology of the University in Szeged.)

The question was examined in which way the hepatotoxic and alarming effects of tannic acid can be influenced dietatically, hormonally and otherwise. Rats received tannic acid in LD 50 dosage and they endeavoured to influence its toxic effect by administering contemporaneously methionine, vitamin C, desoxycorticosteronacetate, Törö's Resector and high casein diet, taking in consideration the sex of the experimental animals as well as the influence of sexual hormones.

It was found that methionine, desoxycorticosteronacetate, vitamin C and Törö's Resector do not influence in any way the survival of animals, nor the hepatic changes due to tannic acid administering them contemporaneously. Male animals seemed to be more susceptible to lethal dosage of tannic acid especially in the first period of intoxication than the females.

On the other hand weight differences of the inner organs and histological changes due to tannic acid were not influenced by the sex of the animals.

Rats fed a high casein diet survived longer than those fed a low casein one. The diet influenced the regenerative processes following acinocentral liver necroses produced by tannic acid, as the regeneration of the liver parenchyma appeared more marked in the animals fed the high casein diet. Such a high casein diet has a part also in the tannic acid stress, i. e. the hypertrophy of the adrenals of animals kept on this diet is more striking, the weight decrease of the thymus is more considerable of those kept on low casein diet.

From the results obtained it may be concluded, that there are two responsible factors for the relative protective effect of the high casein diet in tannic acid poisoning: a direct liver-protective effect and an increase in the activity of the hypophyseo-adrenocortical system promoting defence against non-specific damage.

The antibiotic effect of a microorganism isolated from paprika (Capsicum annuum L.) on Gram negative and positive bacteria: J. Kardos. (Department of Pathological Anatomy and Histology of the University in Pécs.)

The strain isolated from paprika produces an effective antibiotic, displaying with aid of the agar-cup method a protective zone of 20—22 mm against Salmonella typhi typhi murium, Flexner X 4, Staphylococcus aureus, Streptococcus and Pneumobacillus.

The antibiotic exerts no toxic effects in mice and guinea-pigs. Chemical research on this agent, being crystallized in three typical forms, is further conducted.

Plasmocellular neoplasm in the horse: Gy. Sályi. (Faculty of Veterinary Medicine Budapest.)

In a horse of 21 years to be slaughtered, a neoplasm of a man's head's size was seen on the left side adjacent to the neck-bone. The board-hard parts of the neoplasm consisted of a dense mass of protein crystals demarcated by dense fibrous connective tissue; the elastic parts, forming one fifth of the tumour mass, were a plasmocellular tumour (extramedullary plasmacytoma). There was no opportunity to examine the bone marrow regarding the presence of intramedullary plasmacytomas. Among the plasmocells, forming the neoplasm, at some sites pin-like and prismatical crystals were seen. The tumour grew infiltratively into the adjacent muscles and into the neck-bone. The parotidal lymph-node was extremely enlarged and hemorrhaged. Its lymphoid substance could be recognized in some islets, but instead of lymphoid elements plasma-cells were seen. In the other parts, large areas were filled with crystal masses, instead of lymphoid tissue. Foci of a pea's-nut's size, consisting of protein crystals, surrounded by a fibrous connective tissue layer, were found in the liver, in the lungs, on the pleura, in the vicinity of the primary tumour on the neck, between the muscles and in the subcutaneous connective tissue.

The protein crystals were partly needle-like, partly prismlike in shape with a thickness of up to 60 milkra. The latter showed regular serrangular cross sections. They were stained with casius (pale red), with van Gieson's stain (orange), with Weigert's fibrin-stain (dark-blue). Xanthoproteic and Millon's reaction was positive. Digestion in hydrochloric acid-pepsin has been demonstrated. The crystals display furthermore intensive staining with congo red, without showing any other reaction of amyloid. The crystal masses in the lung, fixed with formaline, were separated mechanically from the surroundings, then chemically analysed; they contained 53,15 per cent humidity, 46,85 per cent residues. The latter contains 0,92 per cent ethereal extracts (lipoids) and 11,65 per cent. nitrogen.

The protein crystals which were demonstrated in the neck tumour and in the different organs, are considered by author as products of the plasmacytoma-cells, as a kind of the pathological proteins, paraproteins of *Apitz*, in agreement with data of literature. Similar crystals were described in human myeloma (plasmacytoma), among others by *Abrikossoff* and *Wulff*. Based upon the present observations it could not be decided whether the demarcated foci in the different organs, enclosed by dense connective tissue, were formed by deposition of paraproteins produced by primary tumour or also by formations of plasmocellular growths existing previously in those sites.

The effect of chronic colchicin intoxication on hemogram and bone marrow:
B. Mathé and A. Haranzi (Department of Pathological Anatomy and Histology of the University in Debrecen.)

In albino rats by a single lethal dosis an acute, and by repeated sublethal doses a chronic colchicin intoxication was induced. Hemograms and bone marrow of 24 animals in acute, and of 48 in chronic intoxication were examined. 20 animals served as controls, and in each animal to be tested the hematologic status has been determined before the experiment.

70–80 per cent of the total white blood cell counts consists of lymphocytes. One dose of colchicin, effects a drop in the leukocyte count. This is mainly due to reduction in number of granulocytes. The leukopenic stage is followed by a marked leukocytosis, due mainly to increased number of cells belonging to the myeloid series. There is a slight shift toward the left in the hemogram. Less marked and less characteristical changes occur in the lymhocyte counts. A slight anemy is to be observed.

In the leukopenic stage, mature leukocytes are leaving the bone marrow to supplement decayed leukocytes. In the leukocytotic stage there is an increase of juvenile myeloid forms in the bone marrow; atypical mitoses are often seen, followed by pyknosis, and finally a toxic damage to the leukocytes is observed also.

In chronic intoxications the behaviour of hemogram and bone marrow are similar to acute alterations. The main difference is the protracted course, especially of the leukopenic stage which is followed by a very strongly marked leukocytosis. Repeated administration of colchicin, causes that the leukocytotic stage is not followed by a state of rest. An increasing anemia is induced, causing finally a condition similar to agranulocytosis.

At this stage, no smears can be made from the bone marrow, as it is dry, crumbling. In embedded section, besides decay of the marrow, increase of the reticulum is to be seen, with gradual transformation into connective tissue, and desmogeneous bone formation starts.

In acute poisoning symptoms of toxic panmyelophthisis while in chronic intoxication a secondary, aplastic decay of the marrow was observed. In our opinion in chronic administration of colchicin animals succumb to destruction of the hemopoietic system. This view is supported by the fact that we never observed any sign of extramedullar hemopoiesis.

Further experiments with colchicin treatment of animals with neoplastic bone marrow were simultaneously protected.

About the frequency of trichinellosis: L. Rumoli. (Institute of Veterinary Hygiene Budapest.)

Among parasitic infections, transmitted to man by animals, the Trichinella spiralis (formerly Trichina sp.) plays an important role. This parasitic disease is recently frequently met with also in such countries where it was of a rare occurrence before. High frequency was revealed by autopsy findings of latent infection, amounting e. g. in the U. S. A. to 16,1, in Chile to 12,5, in the southern part of Gt. Britain to 10,8 per cent. of the population.

Grubs of trichinella were first found in Hungary by Genersich in 1867. Subsequently several papers were published on trichinellae in the living and in autopsy material. In 1885 in [illegible] 6 persons had trichinellosis and 5 of them deceased, and in 1889 in Szeged from 49 diseased persons three died. March 1950, in Urbut, after having taken wild boar's sausage 18 infections were observed. In the sausage, larvae of trichinella were demonstrated. December 1950 also in Urbut through partaking meat and sausage of swine 5 further diseases occurred. In meat and sausage grubs were demonstrated in a great number. A keeper of the forest, in the spring 1950, shot a wild swine; this animal was the cause of infection in the former case (of March); some meat was eaten by the keepers domestic swines, and their meat was the source of the infection in December.

In 1951, in Szigetcsép, after partaking swine sausage, 6 persons were observed afflicted with trichinellosis. The sausage was bought on the open market of Debrecen from an unknown woman. In the sausage larvae were demonstrated.

Taking into consideration the reported cases, frequency of trichinellosis is higher in Hungary than commonly supposed. Cases with but slight symptoms are rarely diagnosticed, thus frequency in reality is still higher. In sporadic, slight cases symptoms are regarded as due to meat poisoning, typhoid fever, rheumatism, etc., the symptoms resembling those observed in trichinellosis.

The total frequency of the disease is not known. In order to obtain a clear survey it would be necessary:

1. to examine musculature of autopsy material after artebrial digestion to prove the presence of grubs of trichinellae;

2. to institute a central registry of clinically diagnostined cases in the Ministry of Health, Ministry of Agriculture and at the Institute of Veterinary Hygiene

3. to examine the frequency of infections in domesticated and free living carnivorious animals. After having performed the required studies, if one should still find a high index of infectiveness, control measures are to be instituted in order to prevent infections in man.

Eosinophilic pneumonia : A. Vészi. (Hospital of the Szabolcs Street, Budapest.)

The clinical aspect of eosinophilic pneumonia is discussed, firstly described by *Löffler* as a slight, transitory infiltration of the lungs, accompanied by a marked eosinophilia. Subsequently other reports were published, the disease was mostly benign, and thus histological examinations were restricted to few lethal cases. The cause of decease was found to be an allergic shock, and periarteritis nodosa generalisata. Some authors mention parasits in the bowels in connection with the disease.

No case is reported in which death was caused by extensive infiltration of the lung, interfering with its respiratory function. A case of a female of 14 years is reported here, where death occured after a disease of a fortnight by massive pulmonary infiltration. In the course of the disease, eosinophilic counts up to 50–60 per cent were constantly stated, in the blood-circulation X-rays revealed the progress of the pulmonary infiltration. In autopsy, the finding in the lungs was resembling that of bronchopneumonia, differing by a strong yellow color. Histologically, in the alveoli slight amounts of serous exudate were found, a slight number of desquamated epithelia, besides a great number of eosinophilic leukocytes. Some alveoli were full of the latter. Eosinophilic cells were found in the liver in the interlobar connective tissue and among the trabeculae in the parenchyma. Similarly in the spleen, a great number of eosinophiles was found. Bone marrow and renal hili were also filled by these. In other organs they occured only accidentally. In every specimen, eosinophilic infiltration was seen around the blood vessels: the vascular-walls were thickened, between the different layers eosinophiles were seen too. The appearance was startlingly resembling to periarteritis nodosa, being the most marked in the lung and spleen. Ascaris lumbricoides was not found in the bowels: and no ascaris larvae could be demonstrated in histological specimens of the lungs.

The problem of etiology is briefly discussed finally. An allergic origin seems to be probable though some facts are contradictory. Diffuse vascular involvement is observed, the lung cannot be regarded — though decease occurredby respiratory insufficiency — as the chief-organ, since eosinophiles were to be seen in abundance in other organs too. The question is discussed whether the few bacteria found in the lungs can be regarded as the cause of the disease and whether the presence of parasites in the bowels is a prerequisite of this ailment.

Antecubitaneous Air Embolie : L. Vamossy. (Department of Forensic Medicine of the University in Budapest.)

No manuscript received.

A Contribution to the Surgical Anatomy of the Vertebral Column : B. Szentágothai. (Department of Anatomy of the University in Budapest.)

The problem of intraspongious discus hernias and their formation has been examined. Discus hernias are most frequently observed in the lumbar part of the vertebral column; in the formation of degenerations and traumatic phenomenons they play a considerable role. Stress was exerted upon the upper and lower cartilaginous surface of the isolated vertebrae of 30 specimens by aid of a self-constructed device. Lower surfaces are seemingly more resistant to stress, than the upper surfaces. This observation corresponds with the statement of *Langerhans* (1875). In his opinion the cause of this phenomenon is the more marked trabecular structure on the lower surfaces. X-ray examinations revealed a more coherent structure in this area. An increasing resistance was observed from vertebra I to III, but it diminishes in vertebra IV. The lower surface of vertebra resists forces by 10 kg more than the upper, this surface is the most resistant of the entire lumbar-vertebral column. It is a clinically well known fact, that degenerative signs are mostly observed in the two lower lumbar vertebrae and in their intervertebral cartilage. Under the effect of lumbar lordosis vertebrae IV and V are bearing the substantial weight in a most inconvenient position (inclining angle of 15–30°). The three lower discuses perform a flexion-extension movement of 50° from the total of 70°. This is the predi-

[illegible]ry region of discus hernia formation. Vertebrae of juveniles are more resistant; those of [illegible]males more resistant, than of males. This agrees with several X-ray findings and with Gallér's [illegible]servations, finding the lumbar vertebral column of females more developped (by ¼%) than [illegible] males. Slides were demonstrated showing the horizontal and cross sections of discuses, the [illegible] structure of the anulus fibrosus and macro- and microscopical appearance of hernia [illegible]mation. Studies were extended in collaboration with S. *Farkas* (surgeon) and Z. Schiff (roentgenologist). The final conclusion drawn, is that in formation of nucleus pulposus hernias the [illegible] of degenerative processes is more important, than of traumatic phenomena.

[illegible]metric measurements on the musculature of the shoulder- and pelvic girdle: [illegible] and M. Kovács. (Department of Anatomy, Histology and Embryology of the University in Szeged.)

The volumes of musculature was measured bilaterally in the shoulder and pelvic girdle [illegible] well in a male and a female and in a dog, using an appliance constructed by Gallér. Results [illegible] demonstrated in Tables.

In man, the shoulder girdle musculature amounts to [illegible] per cent. of the total musculature of the upper extremity; inward rotators amount to 14,[illegible]; outward rotators to [illegible] per cent. In the pelvic girdle, in comparison with the total musculature of the lower extremity, [illegible],67 per cent. of the muscles were found; outward rotators amount to 13,[illegible], inward rotators [illegible] 5,[illegible] per cent.

This discrepancy between shoulder and pelvic girdle is [illegible] explained by more [illegible] and extended movements of the former. In dogs [illegible] musculature [illegible] amounts to 64,[illegible] per cent. of the forextremity musculature, and the pelvic girdle musculature [illegible] 28, 16 % of the total of the hind extremity. In quadrupeds the [illegible] are more [illegible] in locomotion, the greatest part of body weight is supported by them.

It is stated that in man the m. gluteus [illegible] amounts to [illegible] per cent. from the [illegible] musculature of the extremity, while in the dog the [illegible] amounts to 1,[illegible] per cent. only. The difference between man and dog is [illegible] [illegible] gait of the former.

Data are dealing with muscle tissue, without regard to tendons [illegible]. According to the authors' opinion these data [illegible] [illegible] muscle groups.

[illegible]raffine impregnation and shrinkage of tissues: A. Gallér. (Department of Anatomy, Histology and Embryology of the University in Szeged.)

The shrinking effect of drugs used in paraffine impregnation (fixatives, dehydrating, [illegible]ermediary drugs) was examined on musculature. Furthermore the compensating effect of [illegible]hydrol was investigated. A vacuum thermostate is described, designed by author, for accelerating the paraffine impregnation. The shrinking effect of paraffine on histologic specimens was [illegible] examined and compared with results obtained in anatomic specimens.

If acetone are used as dehydratants of musculature, shrinkage is less by [illegible] per cent [illegible] comparison to dehydratation by aid of alcohol. Benzene and [illegible] proved to [illegible] useful intermediary drugs, in histologic specimens after dehydration with alcohol shrinkage [illegible] approximately less than in anatomic specimens. Using acetone dehydration, nearly [illegible] [illegible] were obtained. Best results were observed after fixation in 4 per cent. formaldehyde, [illegible]hydratation by acetone and using [illegible] intermediarily.

Muscles are caused to swell to more than double of their original volumes by [illegible] [illegible] cent. solution of H_2O_2, and after dehydratation by paraffine, they loose not more than [illegible] [illegible] cent. of the volumes. After initial exposure to H_2O_2 and subsequent effect of other drugs [illegible] original volumes often was regained.

Using a vacuum impregnation method, the span of time required for impregnation [illegible] reduced from 2—3 months to 6—10 hours. Blocks of 1 cm³ volumes are amply embedded [illegible] paraffine within 20—30 minutes, without any damage to the structure.

[illegible]riations in Weight due to Aqueous Imbibition: L. Bános. (Department of Forensic Medicine of the University in Pécs.)

Experiments were performed on corpses of 34 newborn babies in order to examine [illegible] variations due to aqueous imbibition. In a water of 17—[illegible]°C, in [illegible] of 19° C, within [illegible] first 24 hours, an increase of total weight by [illegible] per cent. was stated. Subsequently a [illegible]

sitory loss of weight is observed on 3rd—4th day, and then increase continues up to the 9th—10th day, amounting totally to 8,8 to 10 per cent. of the bodies weight. Then decrease starts, however it comes to the original weight only on the 15th—16th day. Lateron changes could not be measured reliably on account of decomposition.

It was furthermore stated that in the conditions outlined above, on 3rd—4th day discharge of mucosious and gaseous intestinal contents (faeces) occurred, simultaneously with serous discharge from the umbilical stump. On 4th—5th day epithelial desquamation started, this intensified and on 7th day all surface epithelium and horny structures were totally shed off. The emerging of the corpses occurred on 6th—7th day.

The daily weight-increase is easily explained by imbibition of water. This view is confirmed by autopsy findings. The relapse on the 3rd—4th day is due to the decomposition of organic elements from the tissues and to shedding of the superficial layers. Loss of weight after 9th—10th day is due to the progress of decomposition (putrefaction) and loss of hydration capacity.

Knowing how long a corpse was in water, one is able to make statements concerning the weight it had when death occurred. Variations in weight due to aqueous imbibition are of some forensic importance.

Constant signs in paternity actions. E. [illegible]. (Department of Forensic Medicine of the University in Pécs.)

After explaining the bill XXIX of 1946 (Rights of children born extramatrimonially) constant and labile signs were discussed which can be used in stating paternity. Heredity and similarity as diagnostic aids were amply discussed, illustrated by several statistical data and photographs. Use of the classic blood groups is regarded as unsatisfactory; attention is also to be paid to subgroups A_1 and A_2 and to Rh factors. The latter proved to be useful in finding the father in 4 per cent. of cases.

While formerly paternity of a person was to be excluded, presently there is aim to prove identity of the father, by similarity diagnosis. The importance of anthropological [illegible] is stressed, being an expression of the general trends in a population. Conformity of similarity signs is indicative of some probability. Perhaps, such signs are not due to chance but to inheritance. Besides these inherited factors genotypes of the supposed father are of a [illegible] importance. In the author's opinion, anthropological examinations and their conclusions cannot be properly evaluated by the court. It seems necessary to care for their popularization.

Akadémiai Kiadó (Budapest, V. [illegible] 21.) [illegible]
Akadémiai nyomda [illegible]